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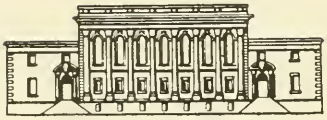

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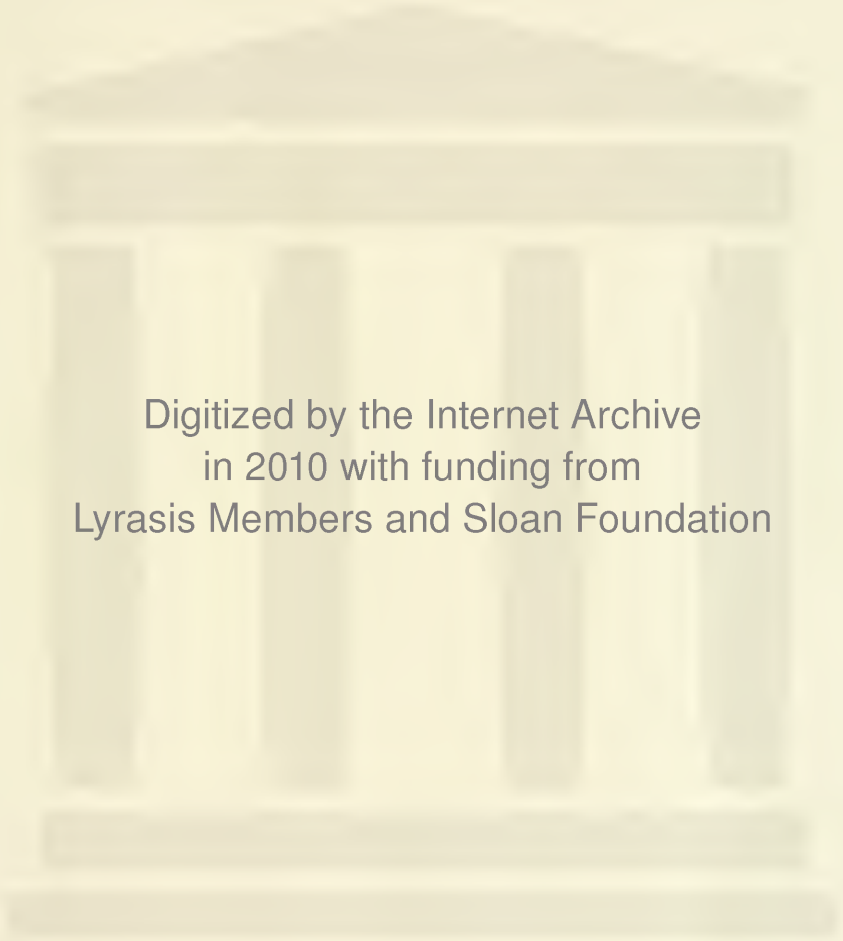

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A STUDY OF THE RELATIONSHIPS AMONG THE EYSENCK PERSONALITY QUESTIONNAIRE, THE ZUCKERMAN SENSATION-SEEKING SCALE, AND MAGNITUDE ESTIMATION JUDGEMENTS

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CHAPTER I

THE PROBLEM

This investigation hoped to show that responses to standardized personality questionnaires and responses to a basic exercise in magnitude estimation could be correlated and proven to be sensitive to an underlying trait called augmenting-reducing. The primary purpose of this study is to investigate the relationship between the Eysenck Personality Questionnaire (EPQ: Eysenck & Eysenck, 1975), a form of Zuckerman Sensation-Seeking scale, Form II (SSS; Zuckerman, Kolin, Price, & Zoob, 1964), which omits the questions which loaded heavily for males only, and Magnitude Estimation Judgements (Stevens, 1956). Another purpose of this study was to investigate the possibility of a broad, underlying dimension of personality which could for individual differences of these various measurements. Many studies have been made in an attempt to relate personality traits with specific qualities of human behavior both through factor analysis and by experimental procedures. The personality traits of primary concern to this study are extraversion-introversion, neuroticism-stability, and psychoticism-superego (Eysenck & Eysenck, 1968, 1975). All of these traits are measured by the EPQ.

The "optimal level of stimulation" construct was first formulated by Wundt (1873) to "explain the curvilinear relationship between affective reactions and intensities of stimulation" (p. 139, Zuckerman, Eysenck & Eysenck 1978). This concept was later presented by Hebb and Thompson (1954), Leuba (1955), Berlyne (1960), and Fiske and Maddi (1961) as a substitute for the concept of drive reduction.

The SSS was developed to quantify this construct and to account for individual differences in the optimal level of stimulation (Zuckerman, et al., 1964).

The basic principle of the psychophysical law is, "equal stimulus ratios produce equal sensation ratios" (p.1, Stevens, 1975). This principle requires an accurate way to measure sensation ratios. Stevens (1975) stated that this involves matching of an aspect of one continuum to an aspect of another continuum. Through the method of magnitude estimation, the individual can already relate to one continuum through his familiarity with the number system. He needs only to relate this continuum to items on any other continuum presented to him. The method of magnitude estimation requires that a series of stimuli be presented in irregular order (Stevens, 1975).

Another dimension of human behavior that was studied in this investigation was the concept of "augmenting - reducing" (Petrie, 1967). This concept accounts for the differences in individual responses in terms of their modulation of sensory experiences ranging from the most intense to the most subdued degree. "The reducer tends subjectively to decrease what is perceived; the augmenter to increase what is perceived; the moderate neither to reduce nor augment what is perceived" (pp. 1-2, Petrie, 1967).

The EPQ grew out of the revision of previous tests developed by H.J. Eysenck. These previous tests included the Maudsley Medical Questionaire (MMQ; Eysenck, 1952), the Maudsley Personality Inventory (MPI; Eysenck, 1962), and the Eysenck Personality Inventory (EPI; Eysenck & Eysenck, 1968). The EPI was an advance over the former inventories in that it was written in simplified English

and because of certain psychometric improvements which included the complete independence of the extraversion scale (E) and neuroticism scale (N) which had previously been slightly correlated in the MPI. Also the reliability of the EPI was higher than the previous tests (Eysenck & Eysenck, 1975).

Due to lack of sources relating to the EPQ, most of the references in this report refer to the EPI which differs from the EPQ due to the newer instrument's possession of the psychoticism (P) scale. Eysenck and Eysenck (1975) stated that "the E and N scales of the EPQ are so similar to the corresponding scales of the other questionnaires that whatever has been discovered about correlates of E and N with the use of the older scales must be assumed to apply with equal force to the new scales" (p.3). Eysenck and Eysenck also stated that it was an empirical fact that a large proportion of the total common variance produced by the correlations between most personality traits can be accounted for in terms of E and N. "These two factors attribute more to a description of personality than any other set of two factors outside the cognitive field" (p.4). The P scale was added to the EPQ because of two hypotheses: "(1) psychiatric abnormalities are essentially continuous with normality, and (2) neurosis and psychosis are entirely different and independent dimensions" (p.4). The reliability coefficients for the EPQ, based on a sample of 257 subjects mostly ranged from .80 to .90, (Eysenck & Eysenck, 1975).

The word "psychoticism" according to Eysenck and Eysenck (1975) simply refers to "an individual personality trait present in varying degrees in all persons. If present in marked degrees

it predisposes a person to the development of psychiatric abnormalities. However, the possesion of such predisposition is a far cry from actual psychosis and only a very small proportion of people with high P scores are likely to develop psychosis in the course of their lives" (p. 3).

The P scale measures "toughmindedness." An individual who scores high on this scale is described by Eysenck & Eysenck (1975) as:

> Solitary, not caring for people; often troublesome, not fitting in anywhere. He may be cruel and inhumane, lacking in feeling and empathy, altogether unsensitive. Hostile towards others, and aggressive. Liking for odd and unusual things, and a disregard for danger. He likes to make fools of other people and to upset them. (p.5).

The E scale measures a mixture of traits of "socialibility and impulsivity" (p.484, Eysenck and Zuckerman, 1968). The typical extravert is described by Eysenck and Eysenck (1975) as:

> Sociable, likes parties, has many friends, needs to have people to talk to, and does not like reading or studying by himself. He craves excitement, takes chances, often sticks his neck out, acts on the spur of the moment, and is generally an impulsive individual. He is fond of practical jokes, always has a ready answer, and generally likes change; he is carefree, easy going, optimistic and likes to 'laugh and be merry.' He prefers to keep moving and doing things, tends to be aggressive and lose his temper quickly; altogether his feelings are not kept under tight control and he is not always a reliable person. (p.5)

The typical introvert is described as:

> Quiet, retiring sort of person, introspective fond of books rather than people; he is reserved and distant except to intimate friends. He tends to plan ahead; 'looks before he leaps' and distrusts the impulse of the moment. He does not like excitement, takes matters of everyday life with proper seriousness, and likes a well-ordered mode of life. He keeps his feelings under close control, seldom

> behaves in an aggresive manner, and does not lose his temper easily. He is reliable, somewhat pessimistic,and places great value on ethical standards. (p.5)

The N scale "reflects the dimension of emotional stability-instability with persons at the high end being prone to respond with dysphoric emotions to a variety of situations" (p.484, Eysenck & Zuckerman, 1978). Eysenck and Eysenck (1975) describe the individual who scores high on this scale as:

> A worrier; his main characteristic is a constant preoccupation with things that might go wrong, and a strong emotional reaction of anxiety to these thoughts. Anxious, frequently depressed. Likely to sleep badly and to suffer from various psychosomatic disorders. Overly emotional, reacting too strongly to all sorts of stimuli, and finds it difficult to get back on an even keel after each emotionally arousing experience. His strong emotional reactions interfere with his proper adjustment, making him react in irrational, sometimes rigid ways. (p.5)

The lie scale (L) measures a person's tendency to "fake good" (p.7, Eysenck & Eysenck, 1975). It is a "measure of defensiveness or social desirability response set" (p.484, Eysenck & Zuckerman, 1978). For the purposes of this study, L was used to explain a negative correlation between it and the SSS. This would lead one to believe that the woman who scored high on L would be less likely to think of sensation seeking as a socially acceptable trait.

The SSS consists of 30 forced choice items which reflect "preferences for extremes of sensation (heat, cold, noise, tastes, colors, musical sounds, etc.), the new and unfamiliar, irregularity as opposed to regularity and routine, enjoyment of danger or thrills social stimulation, adventure, and general excitement" (p.420, Zuckerman & Link, 1968).

There are two possible interpretations of the SSS scores: "(a) they might measure insensitivity or psychopathic tendencies; (b) they might distinguish individuals who are highly sensitive to to internal sensations of various types" (p.479, Zuckerman, et. al., 1964). These possible interpretations are the basis for which this test was chosen to be used for this investigation.

The personality picture of an individual who scores high on the SSS is described by Zuckerman and Link (1968) as a person who:

> Needs change in the environment, is independent from others, and probably needs others primarily as an audience to his own performance. He is impulsive and labile (p.425). He is oriented to body sensations, extraverted, thrill seeking, active, impulsive, antisocial or nonconformist, and low on anxiety. He may be eccentric but is less likely to be psychiatrically disturbed than the low sensation-seeker (p.421). The high sensation-seeker individual is nonconventional, low in social values or conformity, needs variety, and does not value order and routine. Sensation-seeking is a fundamental trait underlying other trait expressions. (p.424)

The low sensation-seeker on the other hand is one who:

> Needs order and predictability in his environment. Values social affiliation and is willing to give to or give into others to maintain stability. (p.425)

The area of psychophysics is primarily concerned with the "responses that organisms make to the energies of the environment" (p. 226, Stevens, 1960). Through the use of basic scaling methods, the strength of a sensation can be quantified (Stevens, 1960). The method of magnitude estimation judgements of weight is based on a prothetic continua in which "discrimination appears to be based on an additive mechanism by which excitation is added to excitation at the psychological level" (p.377, Stevens & Galanter, 1957). It is a ratio method which tries to "get directly at the

form of the ratio schedule of subjective magnitude"(p.377, Stevens & Galanter).

Fechner's Power Law which states that "sensation increases in equal arithmetic steps as the magnitude of the stimulus increases in ratio steps" (p.230, Underwood, 1966), was replaced by Steven's Power Law. It is different in that it states that "equal stimulus ratios are paralleled by equal sensation ratios. The law is so named because the formulation asserts that sensation (response) is equal to the stimulus magnitude raised to the n/th power"(p. 231, Underwood). The Psychophysical Power Law reads:

$$\Psi = k\emptyset^{\beta}$$

The sensation magnitude "Ψ" grows as a power function of the stimulus magnitude "$\emptyset$." The constant "k" depends on the units of measurement, but the value of the exponent "β" serves as a signature that may differ between the sensory continua, lies in the value or its exponent. (p.13, Stevens, 1975) The value of the exponent was used in this investigation to compare the magnitude estimation judgements with the other variables obtained from the EPQ and the SSS. A premise of this project is that scores on the SSS, in conjunction with those of the EPQ scales, can lead to a further refinement of the augmenter - reducer concept. An attempt was made to characterize subjects in terms of the hypothesized augmenter-reducer dimension by determing individual exponents on a magnitude estimation task (Stevens, 1956).

Baker and Dudek (1975) found the mean exponent for magnitude estimation to be 1.47 which is consistent with other similar studies (Stevens, 1975). The mean exponent in this study was

found to be .572. This leads to the question of what can account for individual and group differences in this procedure. Stevens and Galanter (1957), stated that "the judgement of heaviness is a complex,difficult judgement that is easily influenced by a host of second-order factors, such as manner of lifting, order of lifting size-weight illusion, method of report, etc." (p.386). This study attempted to control for these factors, but there are individual differences which would be impossible to control such as, "(a) variability due to the observer's modulus such as,his conception of the standard; (b) variability due to the observer's conception of a subjective ratio-decide what is half as heavy; (c) variability due to differing sense-organ operating characteristics" (pp. 249-250, Stevens, 1960).

The unifying theme of this investigation is an attempt to tie together the results of the EPQ,SSS, and Magnitude Estimation exponents in a way that will make inferences about the hypothesized dimension of augmenting - reducing possible. The augmenter has been described by Petrie (1967) as a person who has fewer and deeper friendships and prefers to work alone. "He appears to have intense consciousness of himself and of others"(p.104) and can be described as an introvert, (Petrie, Collins, & Solomon, 1960). The reducer has been described as preferring to have many friends, and desiring an occupation which brings him into contact with many other people (Petrie, 1967). He also has a high desire for physical activity (Petrie,1967),and can be described as an extravert (Petrie, et al., 1960).

Previous studies showed that "individual differences in

tolerance for pain are paralleled by differences in perception, especially in the tendency subjectively to reduce the intensity of sensation and the perception of time" (p. 89, Petrie, et.al. 1960). A study by Spilker and Callaway (1969) demonstrated electrophysiological correlates between augmenters and reducers. Another study demonstrated that "a person's experience of the size of an object held between the fingers gradually changes; the reducer feels as if the object has been reduced in size and the augmenter feels as if it has been augmented" (p.4, Petrie, 1967).

In an experiment concerned with the perception of weight, Petrie (1967), found that "for the 16 reducers, augmenters, and moderates, a product-moment correlation was found between weight and size augmentation and reduction (r=.53). The statistical significance of the value indicates a positive association between the two perceptual differences being explored" (p.130, Petrie, 1967). Such findings support the notion that the perception of internal sensation can indeed be a function of a general tendency to augment or reduce and these tendencies can be manifest in persons with differing characteristics.

Based on previous research which has attmepted to relate basic personality measurements to responses of various psychophysical measurements this investigation attempted to measure the construct validity of the EPQ and SSS and their power to interpret responses of the magnitude estimation judgements. Essentially, this study attempted to answer the following general question: Can certain underlying personality traits account for differences in the perception of sensation? This question leads to the formation of three hypotheses:

(1) Correlations between the EPQ scales and the SSS should be significant.

(2) The SSS should correlate negatively with the Magnitude Estimation exponent.

(3) The P scale of the EPQ should correlate negatively with Magnitude Estimation exponent.

CHAPTER II

REVIEW OF LITERATURE

Personality Measurement: Studies have been published which apply to the general question which this investigation seeks to answer. Previous studies have related the personality traits measured by the EPQ to measurable behaviors. Relations have been postulated and discovered between extraversion and conditioning, level of aspiration, figural after-effects, masking, reminiscence, vigilance, sedation threshold, rotating spiral after-effects, constancy phenomena, the occurence of time error, and verbal learning (Eysenck, 1970). It was such studies that lead to the assumption that extraversion could also influence perception of inner sensations in such tasks as magnitude estimation of weight.

There have been many studies which have attempted to further define the dimension of sensation seeking by testing its construct validity as in some of the studies listed by Zuckerman and Link (1968). The following reports are pertinent: (1) A positive correlation of sensation seeking and field independence in males as measured by Thurstone's Embedded Figures Test, suggesting that high sensations seekers are sensitive to internal sensations such as body orientation (Zuckerman & Link, 1968); (2) A low, negative correlation was found between the SSS and the Multiple Affect Adjective Check List (Zuckerman & Lubin, 1965) which, according to Zuckermam & Link (1968), implies an enjoyment of tension raising situations,

(3) Zuckerman, Persky, Hopkins, Murtaugh, Basu, and Shilling (1966) found a positive and significant correlation between the SSS and the psychopathic deviance and hypomania scales of the MMPI. They postulated that the high sensation seeker tended to be deviant and somewhat antisocial, excitable, and overactive (Zuckerman & Link, 1968). (4) SSS correlated significantly with only one of the 13 standard MMPI scales, the Hypomania scale (Zuckerman & Link, 1968). (5) SSS correlated with the EPI E, N. and L scales (Zuckerman & Link, 1968).

Avtar Singh (1979) studied the relationship between the SSS and Thayer's Adjective Checklist, a self-report measure of activation (arousal) in terms of four factors: General Activation, High Activation -subjective tension; Deactivation -sleep; and General Deactivation -placidity and stillness, (Thayer, 1967). He concluded that the SSS and Thayer's Adjective Checklist apparently provide an estimation of an underlying construct of physiological arousal or activation as revealed by their statistically significant correlations.

Gaylord Thorne (1971) through his work using the SSS to test deviant populations found that the general personality description quoted earlier by Zuckerman and Link (1968) was supported by samples of abnormal subjects also.

There have been studies which demonstrate the relationship between the dimensions of the EPQ and SSS. The study by Eysenck and Zuckerman (1978) most thoroughly describes the relationship. Sensation seeking was positively correlated with the E and P

scales of Eysenck's newer instrument, the EPQ. No relationship, however, was found between sensation seeking and the N scale which is consistent with previous studies using general anxiety and neuroticism scales to test for a relationship between N and sensation seeking (Zuckerman, 1974). They stated that between a quarter and a third of the variance in the SSS can be accounted for by the E and P factors but because of the total variance the SSS must also measure something that is not included in Eysenck's model of personality. This study does show some correlation between the SSS and the L scale. The correlation is low for males, but considerably higher for females. This could be due to more females, than males being reluctant to admit to socially unacceptable preferences and impulses which the SSS and EPQ both probe, regardless of actual behavior or preferences. Males on the other hand, do not have the same social standards as women and therefore would not tend to show a negative correlation between these two factors.

In a study by Farley and Farley (1967), the E scale of the EPI and the SSS had a significantly positive correlation of .47. Berlyne (1960) defines an extravert using the same terms that Zuckerman uses to define the sensation seeker,"The extravert will seek arousal producing stimuli so as to maintian some optimal level of arousal potential." (p.215)

As previously mentioned most studies have found little or no correlation between the SSS and anxiety or neuroticism scales, but a study by Mellstrom, Cicala, and Zuckerman (1976) predicts

a negative correlation between state fear reaction in certain classic phobic situations. Eysenck and Zuckerman (1978) stated that "general anxiety and neuroticism scales measure generalized social fears but are not highly predictive of specific fears of physical harm. Low sensation seekers generally avoid risks and when they cannot avoid they become anxious. But the tendency to avoid risks is not necessarily a neurotic trait." (p. 486)

Mellstrom, et al. (1976) also found that "persons scoring high on the Thrill and Adventure Seeking Scale of the SSS are less likely to report anxiety in anxiety-inducing situations. It is possible then to predict that someone scoring high on this scale may tend to approach a fear-inducing situation to obtain arousal." (p.90)

Psychophysical Measurement: Studies have also been published concerning individual and group differences found in psychophysical magnitude estimation judgements. Cavonius, Hilz, and Chapman (1974) suggested a modification of Steven's Power Law to include a factor (i) that depends on the sensitivity of the individuals nervous system: $\psi = k\phi^{\beta_i}$. They found that inter-subject differences found in psychophysical magnitude estimation experiments is not random, but is due to differences in the way in which individual's nervous system processes sensory information. They predicted that "poor discriminators would produce a relatively low exponent because they would perceive all stimuli as being similar. They would also show more variance since they would tend to confuse different stimulus intensities." (p.89)

Jones and Marcus (1961) suggested the use of a "personal

exponent" to account for individual differences in subjective magnitude judgements. They questioned the difference among individuals and their use of numerals. Subjects with relatively large personal exponents either have more intense subjective magnitudes or they have different conceptions of the number system. One must try to determine whether the obtained differences are due to perceptual differences or to differences in habits of response. Jones and Marcus, in addition, questioned whether or not averaging across subjects gives a true representation of the group exponent.

Pradhan and Hoffman (1963) also questioned the procedure of averaging across observers. They found that individual psychophysical functions did not follow Steven's law although averaging over observers does yield a power function, and concluded that Steven's Power Law was an artifact of grouping. They also stated a reasonable solution must be found to account for individual differences in judgements by the method of magnitude estimation before a meaning can be attatched to the psychophysical function.

CHAPTER III

METHOD

Subjects

Sixty women from Sweet Briar College, age 18-22, participated in this procedure. They were selected from the population at Sweet Briar that the tester knew personally or that had demonstrated an interest in psychology. These subjects participated as a favor to the tester.

Materials

Eysenck Personality Questionnaire - Adult Scale (Eysenck & Eysenck, 1975)

Zuckerman Sensation Seeking Scale - Form II (Zuckerman, Kolin, Price, & Zoob, 1964). The questions which loaded heavily on males were omitted.

8 medicine bottles, 10 cm. in height by 4.6 cm. in diameter weighing an average of 26.341 grams empty, spray painted black. Each bottle was filled to a desired weight by using lead shot and cotton, and then glued. The appropriate weights were selected according to an approximate logrithmic series (Stevens and Galanter, 1957). The bottles were labled at random:

Standard	90 grams
R	30 grams
P	42 grams
O	60 grams

G	90 grams
T	150 grams
U	210 grams
M	330 grams

Three 14 cm. long machine bolts.

Procedure

The 60 subjects were asked to take the Eysenck Personality Questionnaire - Adult Scale and the Zuckerman Sensation Seeking Scale at one of the three testing sessions scheduled on three days. A general introduction was read at each session thanking the subjects for participating in this testing procedure and explaining that this project is involved with "studying the relationship between the way people feel about things and their responses to sensory stimulation." The subjects were identified by a special code known only to the subject:

> number of letters in mother's first name-
> number of siblings in your family-
> birthdate: month-day-year.

Instructions were read by the tester before proceeding with each test.

Beginning one week later and continuing for six weeks, each subject was asked to participate in an individual session of the magnitude estimation part of this procedure. The magnitude estimation procedure that was used was according to Stevens (1975), however, in this study a standard stimulus was used. The standard, 90 grams, was used becaused it falls near the middle

of the range of the stimulus values (Stevens, 1975).

Each subject was blind folded before beginning. Instructions were read to each subject which included a brief introduction to the procedure of magnitude estimation using weights. The subjects were instructed to take the standard stimulus which had been assigned an arbitrary value of 100 in the non-preferred hand and to pickup each weight which was handed to her with the opposite hand (Petrie, 1967). She was asked to pick up each weight beginning from the table and to lift them approximately four inches off the table.

An example trial run was allowed using bolts as weights (see Appendix 1). The instructions stressed that the subject was to go only by her impressions and that there was no limit to the numbers she may use. The weights were each presented twice (Stevens, 1975); in a random order and then counter-balanced by using the reverse order. The same order was followed for each session. The inter-stimulus interval was 10 seconds. Each response was recorded by the tester (see Appendix 2).

The tests were evaluated and the exponent of the magnitude estimation judgements was derived by using the slope of the log-log coordinates. These results were then correlated using a product-moment correlation.

CHAPTER IV

RESULTS

The results from the EPA, SSS and magnitude estimation judgements are found in Table 1. Table 2 contains the results from the EPQ Age Norms used by Eysenck and Eysenck (1975). Even though there is a considerable difference in the number of subjects for the two studies, the means and standard deviations are very similar. The only noticeable difference is between the E scale of the two samples. This difference was evaluated with a "t"-test for differences between means. The mean of the E scale for this study was significantly higher than the mean reported by Eysenck and Eysenck ($t=4.645$, $d.f.=1036$, $p<.01$). The means and standard deviations of the SSS are also very similar to the results found by Zuckerman, et. al. (1978), which are stated in Table 3. There is, however, a considerable difference between the magnitude estimation exponent in this study and the exponent reported by Stevens (1957).

The correlations between the EPQ scales, the SSS, and the magnitude estimation exponent are reported in Table 4. The predicted negative correlation between P and the magnitude estimation exponent was found not to be significant with this population. Even though the only correlation that was found to be significant at the .01 level was the one between E and SSS, a conservative X^2 test reveals that the overall null hypothesis,

the identity hypothesis (Steiger, 1980), can be rejected ($X^2_{15} = 26.807$, $p<.05$). Individual correlations were interpreted, accepting the .01 level, as statistically significant. The correlations among the scales of the EPQ were very similar to the intercorrelations reported by Eysenck and Eysenck (1975) in Table 5.

The correlations between the EPQ scales and the SSS as reported by Eysenck and Zuckerman (1978) are found in Table 6. Again, the correlations between the two studies are similar except for the correlation between the N scale and the SSS. This was the only correlation found to be significant at the .01 level, in this study. However, the correlation between E and SSS falls just short of significance at the .01 level of confidence.

Table 1

RESULTS FROM THE EPQ, SSS, AND
MAGNITUDE ESTIMATION JUDGEMENTS*

	Mean	Standard Deviation
EPQ - P scale	2.733	2.040
EPQ - E scale	16.700	3.417
EPQ - N scale	12.433	4.466
EPQ - L scale	5.983	3.644
SSS	15.267	4.847
Magnitude Estimation Exponent	5.72	.184

* n = 60 women, age 18-22

Table 2

EPQ AGE NORMS* (EYSENCK & EYSENCK, 1975)

Females

		P		E		N		L	
Ages	n	M.	S.D.	M.	S.D.	M.	S.D.	M.	S.D.
16-19	590	2.99	2.56	13.31	4.61	13.28	5.22	6.78	3.92
20-29	1,366	2.79	2.41	12.89	4.70	12.87	4.99	7.17	3.85

* Data based on English samples.

Table 3

MEANS AND STANDARD DEVIATIONS OF SSS
(ZUCKERMAN, et.al., 1964)

	Females (n = 30)
Mean - SSS	16.7
S.D. - SSS	4.9
Reliability	.74 ($p<.01$)

Table 4

CORRELATION MATRIX OF THE EPQ, SSS, AND MAGNITUDE ESTIMATION EXPONENT*

	P	E	N	L	SSS	Exponent
P		.130	.011	-.234	.221	-.12
E			-.207	.005	.314	-.160
N				-.170	-.340**	-.091
L					-.034	-.064
SSS						.037
Exponent						

* based on 60 female subjects, Sweet Briar College

** $p < .01$

Table 5

INTERCORRELATIONS AMONG THE EPQ SCALES*
(EYSENCK & EYSENCK, 1975)

Scale	P	E	N	L
P		.07	.07	-.19**
E			-.14**	-.09
N				-.15**
L				

* based on 500 women

** significant at .01 level

Table 6

CORRELATIONS BETWEEN SSS AND EPQ*
(Eysenck & Zuckerman, 1978)

Scale	SSS
P	.40**
E	.44**
N	.11
L	-.45**

*based on American sample; n = 122

**$p < .001$

CHAPTER V

Discussion

The results from this investigation show relatively high values for extraversion and low values for the exponent resulting from magnitude estimation of weights when compared to published norms (Eysenck & Eysenck, 1975; Stevens, 1971). Both of these tendencies are consistent with a tendency to be a reducer (Petrie, 1967). The fact that a reducer is prone to subjectively decrease what is perceived is consistent with the reducer's tendency to confuse different stimuli and to minimize subjective magnitudes. This may account for the negative correlation between extraversion and the magnitude estimation exponent. The negative relationship between the P and L scales approaches the .05 level of confidence. This correlation is consistent with the intercorrelations found by Eysenck and Eysenck (1975) and is explained through the basic understanding of the basic principles underlying each scale.

The negative correlation between E and N is also in accordance with previous studies, and supports the plausable premise that extraversion traits such as impulsivity and the desire to find excitement by taking chances is incompatible with the neurotic traits of anxiety and a preoccupation with things that might go wrong.

The positive correlation between the P scale and SSS approaches the .05 level of confidence. This could mean that

the SSS may be measuring psychopathic tendencies (Zuckerman, et. al., 1964). This study did not show that the SSS measured individual sensitivity to inner sensations (Zuckerman, et.al.,) because of the lack of relationship between SSS and the magnitude estimation exponent.

The positive correlation between extraversion and SSS approaches significance at the .01 level. This is congruous with findings in previous studies. This relationship is expected because of the overlap of traits measured by both scales.

The significant negative correlation between neuroticism and SSS may be explained by the low sensation-seeker's tendency to avoid risks whenever possible. Sensation-seeking may be measuring "situation-specific" types of anxiety or neuroticism as opposed to the general type measured by most anxiety scales (Zuckerman & Link, 1968).

The remainder of the correlations, not mentioned in this discussion, were not found to be significant. This includes the predictions that there would be a significant negative correlation between the magnitude estimation exponent and the SSS, and a significant negative correlation between P and the magnitude estimation exponent which were needed to satisfy hypotheses 2 and 3, namely that the SSS should correlate negatively with the Magnitude Estimation exponent, and the P scale of the EPQ should correlate negatively with the Magnitude Estimation exponent.

CHAPTER VI

Summary and Conclusions

A total of 60 subjects from Sweet Briar College ranging in age from 18 to 22 were given a series of tests, the EPQ, SSS and a magnitude estimation task using weights. Each test was evaluated. Each test was correlated with the magnitude estimation exponent and with the other tests.

The results of the correlations between the EPQ scales and the SSS were generally consistent with a previous study by Eysenck and Zuckerman (1978). That is, a positive correlation between P and SSS, a positive correlation between E and SSS, and a negative correlation between L and SSS. The primary difference was between N and SSS. The results found in this investigation can be supported by the study by Mellstrom, et. al. (1976) in which a negative correlation between the two factors was also found.

This investigation predicted that a general personality trait, namely augmenting-reducing, could account for the general differences across the variables of all three tests, The reducer as described by Petrie (1967) should relate responses of extraversion, high sensation-seeking, and a low exponent on the magnitude estimation judgement. This prediction was supported by the positive correlation between the extraversion scale and the sensation-seeking scale. The hypothesized negative correlation

between the E scale and the magnitude estimation exponent, however, was not significant and furthermore, a negative correlation was not found between SSS and the magnitude estimation exponent.

This study also predicted a negative correlation between P and the magnitude estimation exponent. This negative correlation was very slight and not found to be significant with this sample. Perhaps a larger sample would have caused the correlation to be significant.

The general conclusion drawn from this investigation is that the hypothesized personality dimension of augmenting - reducing, in so far as it relates to psychoticism - super ego, extraversion - introversion, neuroticism - stability, and sensation-seeking, is not a well-defined dimension or, at least, is not accesible to the particular methods employed. It is not powerful enough to predict behavioral performance in psychophysical procedures such as magnitude estimation. In other words, this investiation can not support the contention that general personality traits are a valid prediction of subjective innersensation judgements.

Appendix 1

Instructions for the magnitide estimation task read by the tester to each subject:

> This is a test for judging weights. There are no right or wrong answers, I want you to give me only your impressions. For example, if you take one of these bolts in your non-preferred hand and two of them in your preferred hand, you can tell that the load in your preferred hand is twice as heavy as the load in your non-preferred hand. If you were using the single bolt as a standard with an assigned value of '100' to judge the weight of the two bolts in your preferred hand, the judgement which you would give would be something like '200.' If the loads were reversed and you were using the two bolts in your non-preferred hand as a standard for judging the weight of the single bolt and if you were still calling the standard '100,' the judgement of weight would be something like '50.'
>
> Please take this weight in your non-preferred hand. It has been determined as the standard stimulus by which you will judge the other weights. It has an arbitrary value of '100.' I want you to give me your impression of the weights which I will present to your other hand by giving them a number relative to the standard which I am calling '100.' Let me emphasize that you should go only by your impressions and that there is no limit to the numbers you may use.

Identification:_____ Date:_____

Preferred (writing) hand:_____

Inter-stimulus-interval:_____

Value of standard:_____

PSYCHOPHYSICAL SCALING: LIFTED WEIGHTS
(MAGNITUDE ESTIMATION)

P	
U	
M	
G	
R	
O	
T	

T	
O	
R	
G	
M	
U	
P	

	MEAN	LOG
R		
P		
O		
G		
T		
U		
M		

- -

	R	P	O	G	T	U	M
log resp.							
log stim.	1.477	1.623	1.778	1.954	2.176	2.322	2.519

r:_____ slope:_____ intercept:_____ (Slope equals exponent.)

- -

exponent:_____ SSS:_____ P:_____ E:_____ N:_____ L:_____

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